Chapter 13

Financial Policies

The RWSP financial policies are intended to guide King County on the long-term financing of its wastewater capital program and preserve the financial security and bonding capacity for the wastewater system. The policies provide direction for establishing annual sewer rates and capacity charges, and for allocating the wastewater system costs between existing and new customers.

The RWSP financial policies require the county to maintain a multiyear financial forecast and cash-flow projection of six years or more and to estimate service growth, operating expenses, capital needs, reserves, and debt service. The policies also call for maintaining an ongoing program of reviewing business practices with the goal of identifying and realizing potential efficiencies and cost-savings. In addition, the policies provide guidance on the financing of water quality improvement programs and projects.

This chapter provides an overview on implementation of the financial policies and summary information on King County Council adopted amendments to the policies in 2004–2006. This chapter also includes information on assumptions that affect the financing of the RWSP. Finally, in accordance with the RWSP reporting policies, this chapter includes the RWSP cost estimates through 2030 for the year 2006.

The complete text of all the financial policies, including information on policy amendments and a brief summary of how each policy was implemented in 2004–2006, is provided in Appendix L.

13.1 Implementation of Financial Policies from 2004 through 2006

This section provides information on implementation of the major components of the financial policies in 2004–2006.

13.1.1 Establishing Annual Sewer Rates and Capacity Charge

RWSP Financial Policy (FP)-15 provides direction on meeting the costs of constructing and operating the county's wastewater system. The policy calls for existing customers to pay a monthly sewer rate to cover the portion of the existing and expanded system that serves existing customers. New customers are to pay costs associated with the portion of the existing system that serves new customers and costs associated with expanding the system to serve new customers.

The charges for new customers are collected through a combination of the monthly sewer rate and the capacity charge.

Implementation of this policy puts into action the guiding principles and points of consensus for funding the RWSP that were agreed to during a retreat held by the King County Executive and the Regional Water Quality Committee in October 1998, at the Robinswood Conference Center in Bellevue, Washington. The points of this agreement are collectively known as the "Robinswood Agreement." The principle that "growth pays for growth" is the cornerstone of the Robinswood Agreement and RWSP FP-15, which provide for the following:

- All customers with new connections will pay a uniform capacity charge.
- System costs will be defined over the life of the RWSP.
- Costs will be allocated among three categories: growth-related, existing, and shared.
- Customers with new connections will pay both the monthly sewer rate and the capacity charge.
- Rate and capacity charge revenues from customers with new connections will recover 95 percent of total growth costs during the period.

In accordance with the Robinswood Agreement, the Seattle Combined Sewer Overflow benefit charge was discontinued in 2002; these costs are now allocated to all of the region's ratepayers. The total amount of revenue the CSO benefit charge would have generated since its discontinuation in 2002 through 2006 is $8.4 million. Discontinuing the CSO benefit charge during 2002–2030 is estimated to result in an approximate $210 million net reduction in costs for Seattle ratepayers.

The letter documenting the points of the Robinswood Agreement is located in Appendix P.

Annual Sewer Rate and Capacity Charge

Factors that affect the sewer rate and capacity charge include the Residential Customer Equivalent (RCE) forecast, wastewater operating expenditures, capital program expenses, number of new connections, and debt financing. In addition, these charges are affected by the allocation of capital program costs. Figure 13-1 illustrates the relationship between the monthly rate and the capacity charge.

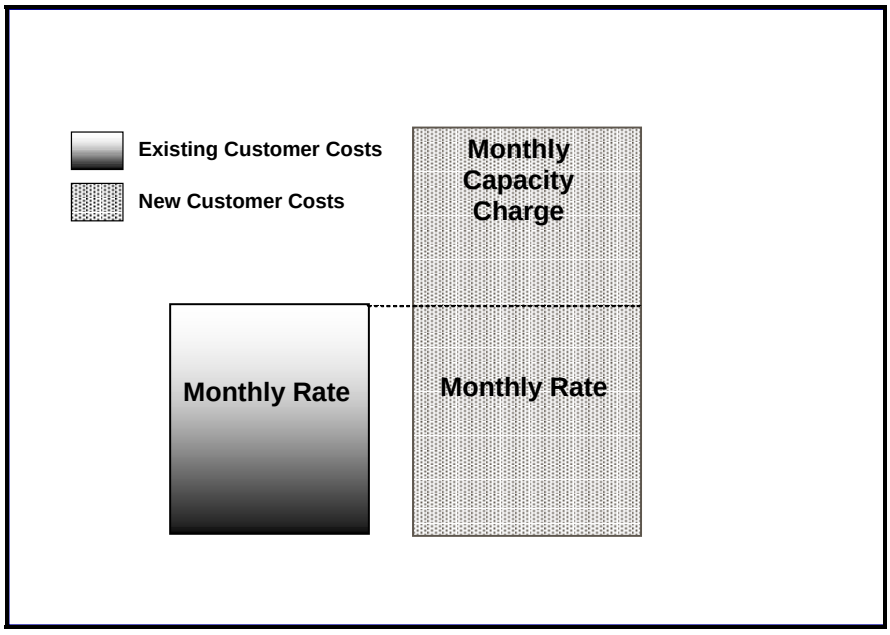

Figure 13-1. Relationship Between the Monthly Rate and Capacity Charge

Residential Customer Equivalents

King County uses RCEs as a means of charging component agencies for wastewater services. In this arrangement, agencies are charged a single RCE for each single detached housing unit, regardless of size or water consumption. For multifamily dwellings and commercial and industrial establishments, agencies are charged on the basis of water consumption. For each 750 cubic feet of water per month consumed, the agency is charged one RCE.

It should be noted that local agencies employ a variety of means of allocating these costs to their customers. For example, in the City of Seattle, the charge for all customers—single-family, multifamily, commercial, and industrial—is based on water consumption.

Table 13-1 shows RCEs by category for 1993 to 2006. During this period, total RCEs increased by a little over 34,000. This aggregate change masks the underlying differences among the categories of customers. For example, from 1993 to 2006, single-family residential RCEs increased by 64,000, which was partially offset by a decrease in commercial and multifamily RCEs of nearly 30,000.

As noted in the *2004 RWSP Update*, a notable change occurred in 2002 as commercial and multifamily RCEs decreased by 21,000 and total RCEs fell by approximately 17,000. The main causes of this drop in 2002 RCEs were large revisions in the number of customers by several agencies, increased water conservation during a period of drought, and a sustained economic downturn. Additionally, the continued reduction in water use leads to lower projections of customer growth in the near term for commercial and multifamily customers. It is assumed that RCEs will grow slowly from 2006, increasing at approximately 0.5 percent growth in 2007 to 2010 before returning to a longer-term average of approximately 0.9 percent per year. Due to the

combination of the decrease in the initial customer base and a period of slow growth, there is upward pressure on rates. The county continually monitors for changes in underlying assumptions and will adjust these projections accordingly.

Table 13-1. Residential Customer Equivalents (1991–2006)

Year	Single Family Residential	Commercial & Multifamily	Total
1993	293,011	363,737	656,748
1994	296,757	362,300	659,057
1995	299,963	367,829	667,791
1996	303,292	367,894	671,186
1997	307,340	371,514	678,854
1998	310,878	376,426	687,304
1999	315,885	378,212	694,097
2000	320,117	376,705	696,822
2001	325,125	377,235	702,360
2002	329,265	355,830	685,095
2003	334,555	350,,578	685,133
2004	342,582	345,327	687,909
2005	349,535	340,282	689,817
2006	357,487	333,447	690,934

The *2004 RWSP Update* compared the 1998 RCE projections (1993–2030) to 2003; this review report focuses on the period of 2004 through 2006. Figure 13-2 compares the RWSP RCE projections for 2003 that were shown in the *2004 RWSP Update* as compared to 2006.

The long-term projection of RCEs is a trend projection intended to provide a conservative financial forecast for the county's wastewater utility. As such, it does not attempt to reflect swings in the business cycle or reflect the basis of capacity needs and timing. Because forecasts are uncertain, the RCE forecast is conservative (relatively low steady growth) to avoid underestimating sewer rates, especially in the near term. It should be noted that RCEs are a billing construct, which, for the majority of our customer base, is independent of wastewater flows. Each single family housing unit is counted as one RCE regardless of the amount of wastewater flow generated. Additionally, RCEs can be affected by short-term swings due to the economic climate. For example, commercial RCE growth was significantly affected by the 2001–2002 recession.

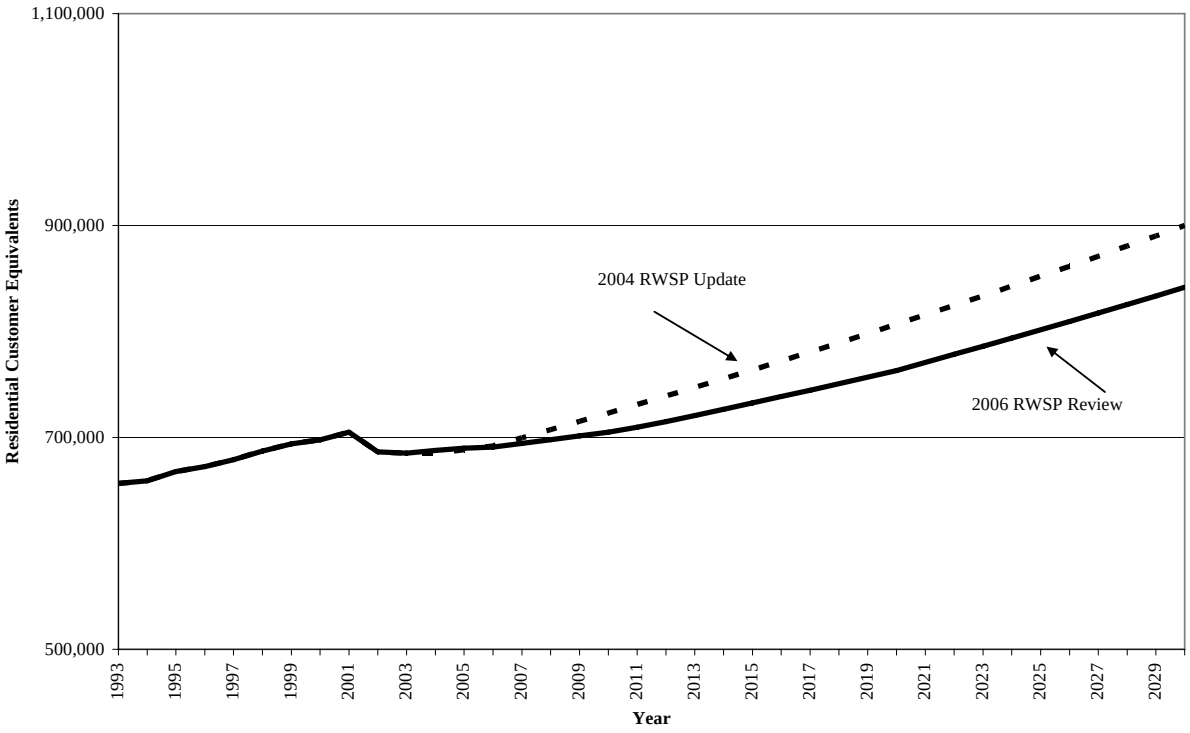

Figure 13-2. Residential Customer Equivalent Projections (1993 to 2030)

Sewer Rate and Capacity Charge Projections

Sewer Rate

Long-term projections of the monthly sewer rate are not strictly comparable to those presented each year in the annual rate process. The rates presented during the annual rate process incorporate the most up-to-date data and the assumption that not all of the capital improvement program (CIP) budget will be expended during the year. Historically, in a given year, actual capital spending is 10 to 25 percent less than budgeted for the entire program. Much of this is because projects are delayed for a variety of reasons, including permitting issues, unknown geotechnical conditions, and unforeseen construction delays. Accounting for this actual spending lowers the proposed rate compared with assuming a 100 percent expenditure. However, long-term planning assumes that 100 percent of the costs are incurred, because the projects will eventually be completed. Consequently, the long-run rate projections in this section reflect an assumption that 100 percent of the annual CIP budget is expended each year.

Figure 13-3 presents the most current mid-term view of the rate projections, the rate projections from the *2004 RWSP Update*, and the actual rates through 2008 (all rates include inflation). The chart indicates that the most current rate projections are somewhat lower than those associated with the *2004 RWSP Update.*

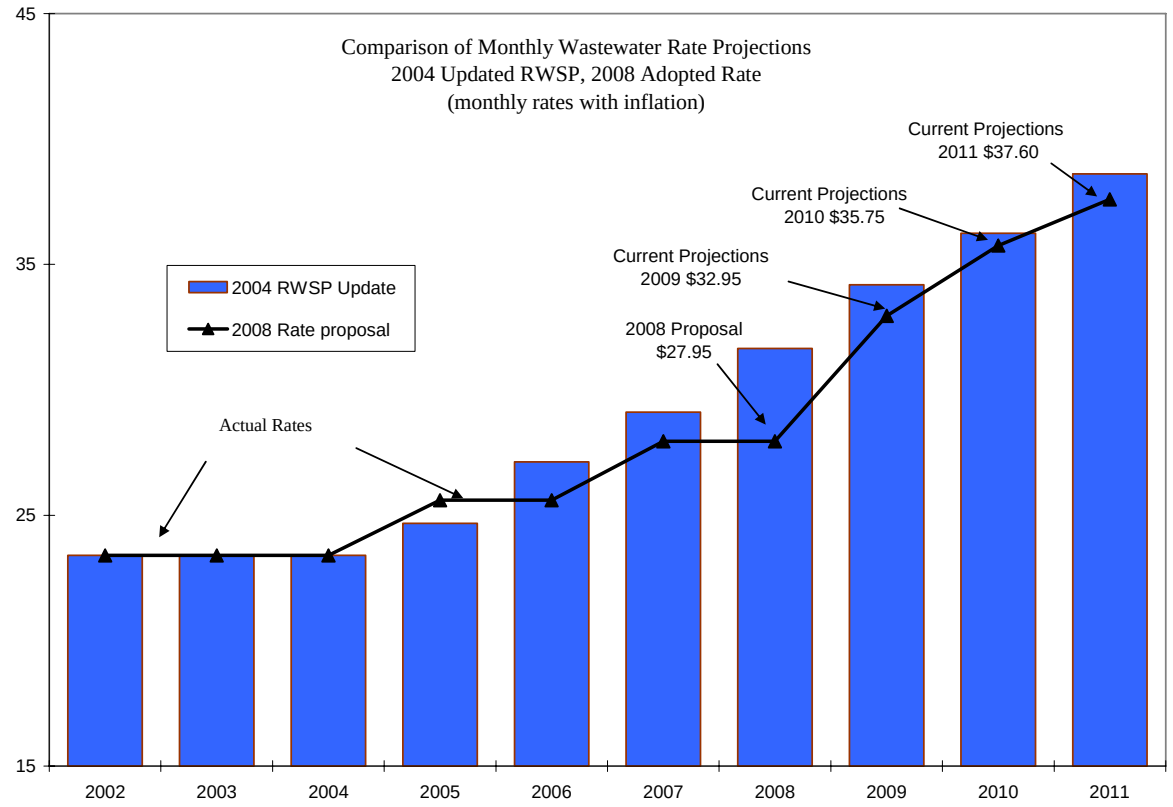

Figure 13-3. Sewer Rate Projections with Inflation (2002–2011)

Figure 13-4 presents long-term sewer rate projections from the *2004 RWSP Update* and updated RWSP sewer rate projections with inflation (2002–2030). Figure 13-5 presents the sewer rate projections, without inflation, in constant 2006 dollars. In this chart, when the line decreases, it means the rate of change in the projected sewer rates is less than the assumed rate of inflation of 3 percent.

Actual monthly sewer rates have closely tracked, if not remained slightly below, the long-run projections associated with the 2004 update through 2008. The main determinant of the pattern of monthly rates is the annual capital spending patterns, as shown in Figure 13-6. This chart shows capital spending for the wastewater program from 1990 to 2030. It highlights the relative amount of spending for the Brightwater Treatment System during the 2003 to 2010 period, with peak capital expenditure in 2009 and 2010. Past 2010, capital spending is projected to return to a more normal long-run level of approximately $100 to $150 million in 2006 dollars.

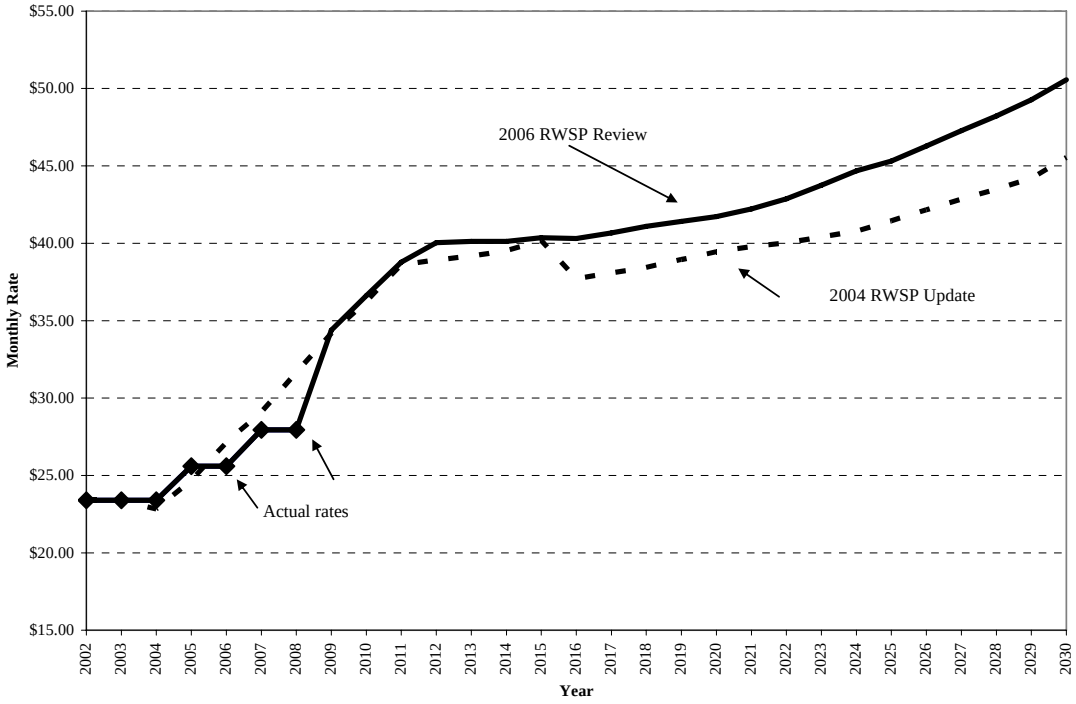

Figure 13-4. Sewer Rate Projections with Inflation (2002–2030)

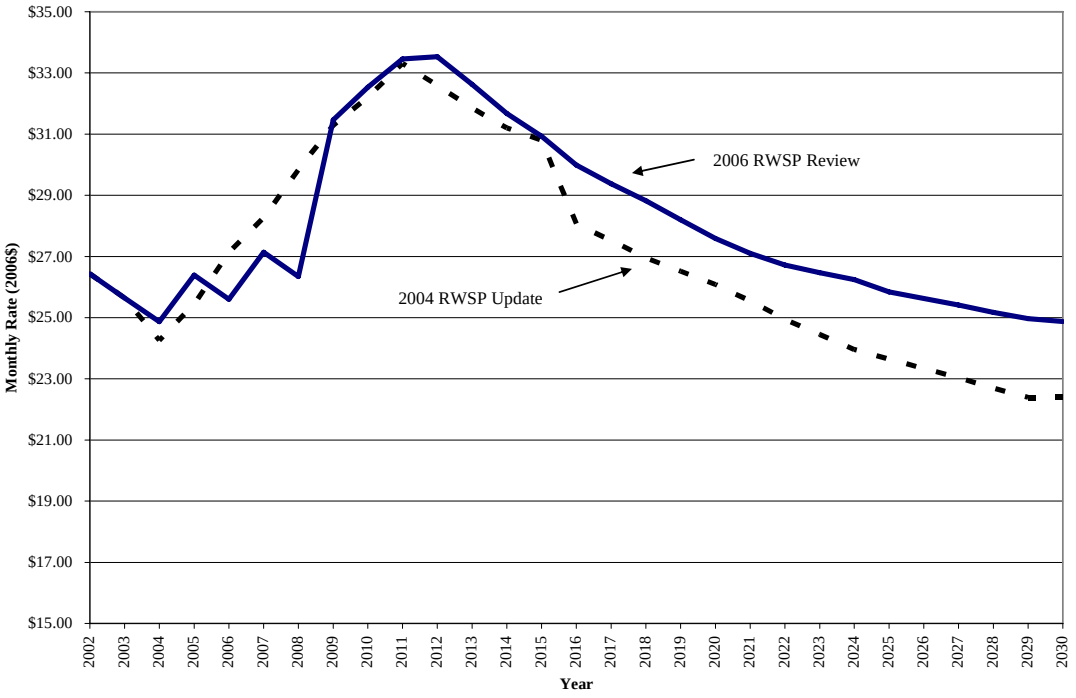

Figure 13-5. Sewer Rate Projections without Inflation (2006 dollars)

Comparing the rate projections of the RWSP 2006 comprehensive review and the 2004 RWSP update, reveals a similar pattern of rate change in the earlier years of the time period. Monthly sewer rate projections for both sets of projections increase relatively rapidly to a peak in 2010–2011, followed by a period of significantly smaller increases, reflecting the capital-spending chart (Figure 13-6). However, the rate projections for the 2006 review show a different out-year pattern (specifically 2015–2016) than that shown in the 2004 update. In the 2004 update there was a marked decrease in 2015–2016 rates, reflecting a projected drop in debt service requirements as earlier bond series were retired. The 2006 review projections do not show this same drop. The projections underlying the 2006 review reflect financing strategies pursued during the last several years to produce a relatively flat rate pattern in the 2015–2016 period. The strategies include issuing deferred-principal bonds and increasing the terms of bonds, which are described later on in this chapter. The goal is to achieve more level or equal debt service payments over time in order to stabilize rates through 2030 and spread systemwide costs out in a more even manner.

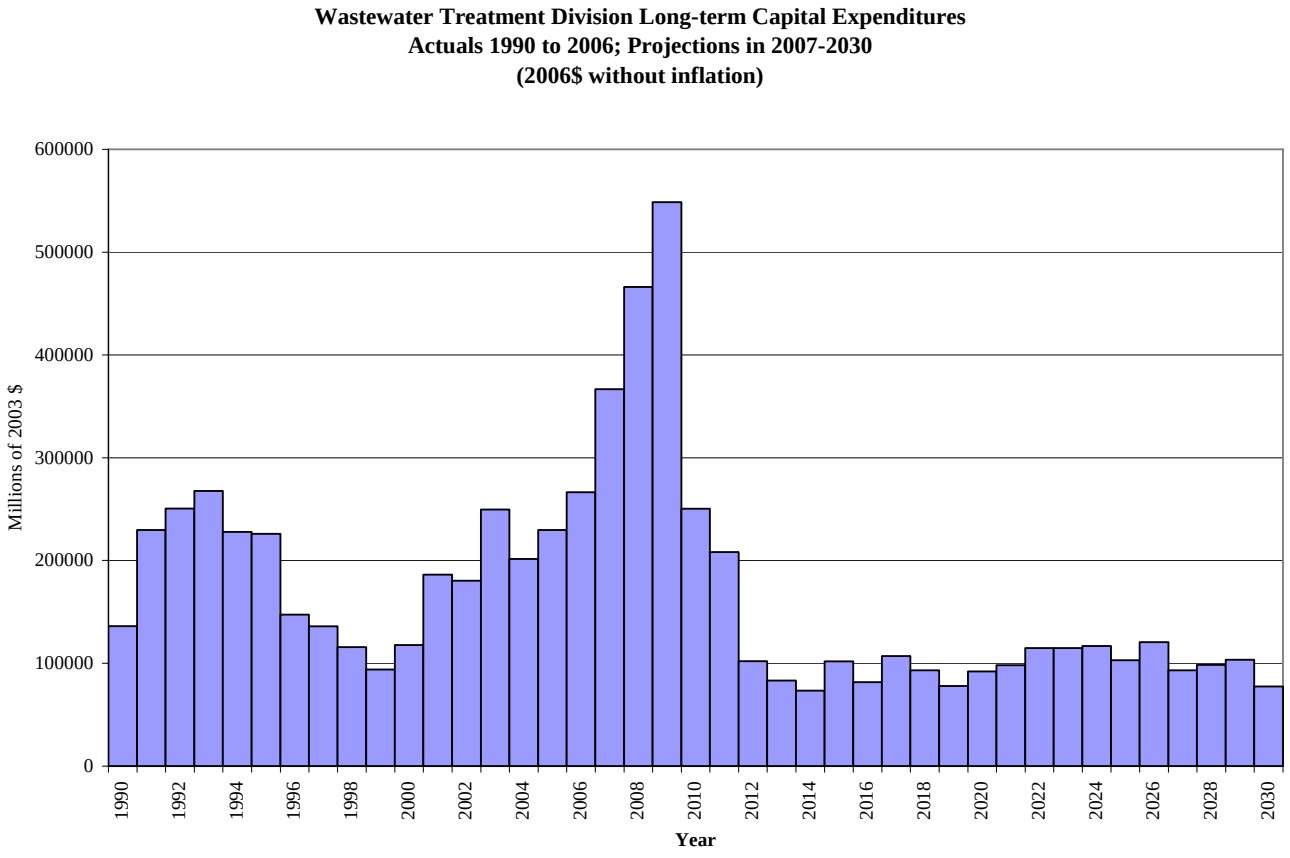

Figure 13-6. Annual Capital Spending for the Wastewater Treatment Division (1990 to 2030)

Capacity Charge

The increases in capital costs associated with new capacity have a direct and significant effect on the capacity charge. This is shown in Table 13-2, which compares the capacity charge estimate contained in the *2004 RWSP Update* with the updated estimates for the 2008 capacity charge for both lump sum and monthly payments.

Table 13-2. Effects of Captial Cost Increases on the Estimated Capacity Charge for 2008

	Projected 2008 Capacity Charge		
	Monthly	**Lump Sum Payment[a]**	**Total When Paid Monthly**
2004 RWSP Update Estimate	**$39.90**	**$4,981**	**$7,182**
Brightwater capital cost increase associated with Route 9 site selection	+$8.60	+$1,074	+$1,548
Extended bond term and lower interest rates, other impacts	-2.25	-$281	-$405
2006 RWSP Review Estimate	**$46.25**	**$5,774**	**$8,325**

Note: This table presents the capacity charges in 2008 as an example of the effects of increases in capital costs associated with new growth. It is assumed the charge increases in subsequent years through inflation at 3 percent per year.
[a]Current policy discounts lump sum payments at 5.5% percent.

The largest component of change in the capacity charge projections is the increase in the capital cost of Brightwater. Because Brightwater is allocated exclusively as a growth cost, the impact to the charge is direct and accounts for more than the total change, which was offset partially by the Wastewater Treatment Division (WTD) extending bond terms and continuing favorable interest rates.

The county will continue to pursue cost containment strategies for Brightwater. In addition, it is expected that continued implementation of the Productivity Initiative, annual reviews of program priorities and cash flow, and ongoing analysis of financing strategies and policy changes will lower overall program costs.

Although total RCEs (new plus existing) have grown at a relatively slow rate recently, the number of newly connecting customers has maintained or surpassed originally expected levels. While new connections have averaged more than 9,500 RCEs per year since the beginning of the capacity charge program in 1990, they have averaged over 11,500 per year since 2000. This level of activity is not expected to continue indefinitely. The forecast begins with a conservative assumption on the potential impact of a softer housing market on new connections in 2007–2008. This is followed by a recovery to 10,200 connections annually from 2013 to 2020, a level supported by longer-term demographic and employment trends for the county's wastewater service area. The projections decrease to approximately 9,600 per year after 2020, reflecting a slowing in projected population growth.

Along with cost control measures, financial strategies to reduce sewer rate and capacity charge impacts are being evaluated. In long-term WTD financial planning, it is assumed that annual debt service payments associated with a bond issue are constant, consisting of a principal and interest component in all periods of the bond term. New debt forms and structures may allow WTD to defer payments and lower rates. The decision to use these new forms and structures must be balanced with the risks of lowering the bond rating, which would increase borrowing costs and rates. The following are examples of financial strategies that are under way or are being considered:

- **Increase the term of bonds**. In 2007, WTD increased the term of bonds issued to 40 years. In addition to moderating the impact to current sewer rates, this provides a better match between the life of the facilities and the debt financing their construction.
- **Issue deferred-principal bonds.** This practice has been used by the county on prior bond issues to achieve level debt service payments over time. In the 2007 rate ordinance transmittal, additional deferred-principal bonds were assumed.
- **Selectively issue zero coupon bonds**. This option defers both principal and interest payments.

Decisions regarding the type of debt WTD can offer must be made based on the economic and financial conditions at the time the debt is being issued. The degree to which these financial strategies can be applied depends on these factors.

Reducing Administrative Barriers to Capacity Charge

Ordinance 14942, which established the 2005 sewer rate and capacity charge, required the King County Executive to provide to the King County Council and Regional Water Quality Committee a report on methods to reduce or eliminate administrative barriers to notifying new ratepayers about their option to make a single payment of the capacity charge. This report was provided to the council in October 2004.

Efforts continue to reduce these administrative barriers and to provide more information on the capacity charge program. These efforts include the following.

- **Meetings with component agencies.** Beginning in mid-2006, capacity charge program staff initiated meetings with component agencies to discuss the capacity charge program and how new connections are to be reported to King County. In addition, King County provides information on the capacity charge program to be shared with the agencies' customers who are obtaining sewer permits. The county has seen significant improvement in the timeliness of reporting of new hookups as a result of these meetings.
- **Informational Materials.** WTD regularly updates a pamphlet and Web site that provides frequently asked questions about the capacity charge and responses to those questions. These pieces include information about potential benefits of paying the charge in a lump sum and including the charge as part of the mortgage. Since September 2006, over 15,000 pamphlets have been distributed to developers, component agencies, escrow companies, and real estate companies. Additionally, pamphlets are mailed to all customers with new accounts.

- **Working with escrow companies.** Escrow companies request a final bill for the seller of a property as part of the closing process for a home sale. Historically, these companies contact the local utility agencies for this final bill to assure that all outstanding utility bills are paid at the time the sale closes. WTD is encouraging them to do the same with its capacity charge program. WTD has developed a form for these companies to use and provides them with the amount due, total remaining balance, and the amount required to pay off the seller's account in a lump sum. A designated email account has been established for escrow requests. As a result of these efforts, about 120 requests are received daily, in comparison with 60–70 more than a year ago.

  Capacity charge program staff is offering to provide presentations to escrow associations and real estate agent associations to keep them informed about the capacity charge program. A presentation was made to the Greater Seattle Escrow Association in June 2006.

Visit the capacity charge program's Web site for more information:
http://dnr.metrokc.gov/wtd/capchrg/index.htm#5

13.1.2 Ensuring Financial Security and Bonding Capacity of the Wastewater System

The RWSP financial policies provide guidance to ensure the financial security and bonding capacity of the wastewater system. The RWSP policies address county borrowing terms, the use of long-term general obligation or sewer revenue bonds, and the use of short-term borrowing. King County remains committed to rate stability, predictability, and equity while providing the revenues and debt service coverage needed to preserve the utility's credit rating and assure continued access to capital markets.

Reflecting this continuing commitment, the utility was recognized in 2006 with a bond rating upgrade to AA from Standard and Poor's, and its A1 rating was reaffirmed by Moody's, the nation's two premier rating agencies. Our continued favorable debt ratings are essential to minimizing the costs of the planned borrowing needed to finance the RWSP.

13.1.3 Maintaining an Ongoing Program of Reviewing Business Practices

RWSP FP-3 directs the King County Executive to maintain an ongoing program of reviewing business practices and potential cost-effective technologies and strategies for savings and efficiencies. To meet this policy guidance, the WTD Productivity Initiative Pilot Program was developed to identify and implement ways to increase efficiency. This 10-year incentive program applies certain private-sector business practices, including an incentive-based cash payment to employees in the wastewater program, to cut operating costs, increase productivity, and continue a high level of service and environmental protection for WTD's customers. This program was approved by the King County Council in 2001.

The Productivity Initiative Pilot Program identifies specific levels of service, cost reductions and efficiencies over the period 2001–2010 that will result in an estimated $75.9 million savings for ratepayers, while increasing levels of service to these same customers. Savings are achieved by undertaking an intensive review of current business practices, identifying and implementing cost-saving practices, working to increase employee involvement in business decisions, and ensuring that the wastewater program receives the best possible services from its partner agencies within and outside the agency.

The basic goals and objectives of this program are as follows:

- Improve efficiency and reduce cost within the wastewater program
- Move to operate the utility more like a business
- Maintain the wastewater utility as a public utility
- Meet or exceed all regulatory requirements
- Incur no loss of service, reduction in safety standards or effluent quality

The Productivity Initiative was first launched as a pilot program for WTD's operating program. It has expanded to include three smaller pilot programs within WTD's capital program. Through 2006, the Productivity Initiative Pilot Program has resulted in a $42.8 million savings to ratepayers.

WTD produces an annual report on the Productivity Initiative. These annual reports are available on the program's Web site at http://dnr.metrokc.gov/wtd/productivity/

13.1.4 Financing Water Quality Improvement Activities

RWSP FP-8 permits funding assistance from sewer revenues of water quality improvement activities, programs, and projects if they meet certain criteria. One of the criteria is that the project is in a watershed served by the county's regional wastewater system and activities associated with the project are intended to reduce water pollution or help preserve or enhance fresh and marine water resources. The total funding of these programs is limited to 1.5 percent of the annual wastewater system operating budget. These funds are commonly referred to as "Culver" funds; in 2006, they amounted to about $1.4 million.

Culver allocations have provided funding for water quality related education, outreach, planning, staffing, and projects. For example, the Waterworks Grant Program, which is funded through Culver allocations, grants up to $50,000 for community projects that protect or improve watersheds, streams, rivers, lakes, wetlands, and tidewater. Other Culver funded programs provide information on how to protect water resources and reduce the discharge of pollutants from entering water bodies and endangering water quality.

In September 2006, the King County Council amended FP-8 via adoption of Ordinance 15602. The amendment calls for information that outlines alternative funding options for these programs within seven months of adoption of the policy. The King County Executive transmitted a report

on alternative funding options to the King County Council and Regional Water Quality Committee in April 2007 to meet this policy direction.

The alternative funding options discussed in the report are as follows:

- **General Fund.** This option would include projects typically funded by Culver funds as an expense of general government. Funding would come out of King County's Current Expense fund, which is composed of property and sales tax revenues and currently used for services related to areas such as public health, criminal justice and economic development.
- **Levy Lid Lift.** This option requires a public vote, and would function similarly to other levies that have been placed on the ballot to raise funds for schools, affordable housing, parks, and emergency services.
- **Endowment Fund.** This option would require about $20 million in seed money in order to generate interest income equivalent to current Culver allocations. The report does not identify potential sources of the seed money other than wastewater or current expense funds; however, the report does mention that private and/or public grant funds could be solicited for this purpose.
- **Flood Control Zone District Funding.** State law permits that up to 10 percent of Flood Control Zone District funds can be used toward "water supply, water quality and water resource and habitat protection and management." The King County Flood Control Zone District was established in April 2007 to protect public health and safety, regional economic centers, public and private properties, and transportation corridors by addressing the backlog of maintenance and repairs to levees and revetments, acquiring repetitive loss properties and other at-risk floodplain properties, and improving countywide flood warning and flood prediction capacity.

In addition to discussing alternative funding options, the report also discusses options for the overall future of Culver allocations. They are as follows:

- **Status quo.** Maintain Culver funding to the current allocation of 1.5 percent of the wastewater operating budget.
- **Cap.** Cap future Culver allocations to 1.5 percent of the 2007 wastewater operating budget (approximately $1.4 million) with annual inflationary adjustments based on an established index.
- **Replace.** Discontinue Culver allocations and replace funded activities with one of the other revenue options discussed in the April 2007 report.

The report also included a summary of Culver allocations from 1997–2007. It is anticipated that further discussions and possible actions regarding Culver funds will occur after the Regional Water Quality Committee completes its review of the report.

13.2 RWSP Cost Estimates

RWSP reporting policies call for including in the RWSP annual reports an update of the RWSP cost estimates through the year 2030. The cost estimates presented in this report include estimates for projects in various stages of development including planning, predesign, final design, and construction. Costs of completed RWSP projects are also included.

The accuracy of cost estimates increases as projects progress through the project life cycle and become more defined. Often the scopes of work and estimated costs for projects in planning will change as more detailed information becomes available over time. For example, planning-level cost estimates are based on generic facility concepts. Specific details of a project such as location, technologies, and environmental impacts and potential mitigation of such impacts are determined later during project predesign. Costs for projects in planning can have a rough order-of-magnitude estimate in the range of -50 to +100 percent.[1,2] By the time a project enters the construction phase, estimates typically narrow to a range of -10 to + 15 percent.

In the past few years, costs for construction materials increased at unprecedented rates, resulting in volatile cost estimates for capital projects. In addition, the Puget Sound region is facing an increasingly competitive construction market. An analysis of bid results published in the *Daily Journal of Commerce* showed that of 32 recent public bids in this region, all but one of the bids came in over the estimated budget.[3] The bids were high by 25 percent on average but came in with a range of 10 to 150 percent over the estimated budget. Other factors, such as new regulations, also affect cost estimates.

King County assumes a standard increase of 3 percent per year in projecting costs for its wastewater capital projects to account for price increases in project components such as materials, labor, equipment, supplies, and contractor markups. This rate is used because it closely approximates the actual rate of inflation over a long period of time. However, per the *Engineering News-Record's* Construction Cost Index (CCI), construction-related inflation averaged 4.1 percent in 2006. For the coming year, forecasters predict that price changes for many construction materials will moderate to long-run levels after the significant increases experienced in 2004 and 2005. However, the easing of price increases for construction materials may be partially offset by increased wage rates due to labor shortages.

This section provides a brief history of RWSP cost estimates. It then presents a summary table of the updated 2006 RWSP cost estimates as compared to the 2005 estimates, followed by an explanation of the components in the table.

Details on RWSP capital projects in design and construction are provided as Appendix Q. In accordance with RWSP reporting policies, the appendix presents a project schedule, an expenditures summary, a description of any adjustments to costs and schedules, and a status of the project contracts for each project.

[1] Project Management Institute's *A Guide to the Project Management Body of Knowledge*, third edition, 2004
[2] Order-of-magnitude estimates are estimates without detailed engineering data; they are often referred to as "ball park" estimates.
[3] Matson Carlson & Associates. *2007 Bid Crisis or How to Survive Today's Bid Climate Part 2.* Sandra Matson..

13.2.1 History of RWSP Cost Estimates

The first RWSP cost estimate was developed in 1998 and reflected planning-level cost estimates for capital projects adopted in Ordinance 13680 and outlined in the 1999 RWSP Operational Master Plan.[4,5] An update to these original estimates, reflecting cost information as of December 31, 2003, was included in the *2004 RWSP Update*.[6] In addition to updating the cost of projects included in the 1998 estimate, the 2003 cost estimates included anticipated costs for projects and programs that resulted from implementing RWSP policies but were not identified or included in the 1998 RWSP cost estimates. Such projects include the Carnation Treatment Plant, upgrades to the Vashon Treatment Plant, odor control improvements at the West Point and South plants, and acquisition of and improvements to Snohomish County interceptors. The *RWSP 2005 Annual Report* included an update to the 2003 cost estimates.[7] The 2005 estimates included adjustments for inflation, including cost increases that have occurred as the result of unforeseen circumstances such as the recent increases in global commodities. The estimates also reflected modifications to projects resulting from information gathered through flow monitoring, modeling, and cost analysis after 2003.

13.2.2 2006 RWSP Cost Estimates

How costs are presented in Table 13–3

Table 13-3 presents a comparison of 2006 RWSP cost estimates to 2005 RWSP cost estimates. A complication to providing a meaningful comparison of costs is the RWSP is an ongoing plan that includes expenditures incurred in the past plus expenditures that are planned for the future. In presenting this comparison, expenditures that have occurred through 2006 are included at their original cost and future expenditures, planned for 2007 to 2030, have been adjusted for inflation to a base year of 2006. In order to make this comparison, previously reported 2005 RWSP cost estimates were adjusted to be consistent with this approach.

WTD is exploring alternative ways in which to present and compare costs in the most informative manner. These could include showing planning level costs in ranges; presenting RWSP costs by different groupings and units of costs, such as expended costs, costs currently in the wastewater capital budget, and future planned costs; and establishing a baseline budget in which to compare final costs.

Overview of 2006 RWSP Cost Estimates

The 2006 cost estimate for implementing the projects and programs associated with the RWSP through 2030 is approximately $3.14 billion in 2006 dollars, an increase of about $98 million from the 2005 RWSP cost estimate of $3.04 billion in 2006 dollars.

[4] Ordinance 13680 adopted the Regional Wastewater Services Plan and was approved by the Metropolitan King County Council in November 1999.
[5] The Operational Master Plan explains how King County will implement the RWSP.
[6] The *2004 RWSP Update* is available at http://dnr.metrokc.gov/wtd/rwsp/library.htm#3yrupdate
[7] The *2005 RWSP Annual Report* is available at http://dnr.metrokc.gov/wtd/rwsp/library.htm#ProgressReports

Total project cost estimates reflect anticipated costs from the initial planning stage through construction and startup. The estimates also include the costs for RWSP projects that have been completed and projects that are in the planning, design or construction phase. Nearly one-third of the total 2006 RWSP cost estimate represents planning-level costs. As noted earlier in the chapter, planning level cost estimates have a rough-order-of magnitude estimate in the range of - 50 to +100 percent.

More details on the 2006 RWSP cost estimates and changes in costs by program are provided in the section following Table 13-3.

Table 13-3. Comparison of 2005 and 2006 RWSP Cost Estimates (1999–2030)

RWSP Element	2005 RWSP Cost Estimates (2005$ x 1M)*	2005 RWSP Cost Estimates (2006$ x 1M)	2006 RWSP Cost Estimates (2006$ x 1M)	Cost Change (2006$ x 1M)
Total RWSP	**$2,950**	**$3,039**	**$3,137**	**$98**
Total Brightwater Treatment & Conveyance	**$1,621**	**$1,670 [a]**	**$1,664 [a]**	**($5)**
Brightwater Treatment Plant	$529	$545 [a]	$587 [a]	$43
Brightwater Conveyance	$853	$879 [a]	$835 [a]	($43)
Land and Right-of-Way	$98	$101 [a]	$97 [a]	($4)
Mitigation	$141	$145 [a]	$145 [a]	($1)
Total Treatment & Odor Control Improvements (Non-Brightwater)	**$146**	**$150**	**$163**	**$13**
Odor Control at South Plant	$4	$5	$7	$3
West Point Odor Control	$1	$1	$1	--
West Point Digestion Improvements	$4	$4	$6	$2
King Street Regulator Odor Control Project	$1	$1	$3	$2
South Plant Expansion	$103	$106	$106	--
Vashon Treatment Plant Upgrade	$19	$20	$20	--
Carnation Treatment Plant	$13	$14	$19	$6
Total Conveyance (Non-Brightwater) [b]	**$648**	**$667**	**$754**	**$87**
Completed CSI projects, acquisitions, and planning			$143	
CSI projects in design or construction in 2006			$197	
Planned CSI projects, planning, and reporting			$414	
Total Infiltration/Inflow (I/I)	**$45**	**$46**	**$49**	**$4**
Total Combined Sewer Overflow	**$427**	**$440**	**$444**	**$4**
CSO Control Program	$377[d]	$388	$388[d]	--
CSO Planning & Updates	$6	$6	$6	--
Sediment Management/Lower Duwamish Superfund	$44	$46	$49	$4
Total Reclaimed Water	**$35**	**$36**	**$36**	**--**
Technology Demonstration (completed 2004)	$1	$1	$1	--
Future Water Reuse	$3	$3	$3	--
Water Reuse Satellite Facility (cancelled in 2003)	$5	$5	$5	--
Reclaimed Water Backbone	$24	$25	$25	--
RWSP Water/WW Conservation (completed in 2005)	$1	$1	$1	--
Water Quality Protection (completed in 2006)	**$15**	**$16**	**$16**	**--**
Habitat Conservation Plan (HCP)/Programmatic Biological Assessment	**$10**	**$10**	**$8**	**($2)**
RWSP Planning and Reporting	**$3**	**$3**	**$3**	**--**

***** The 2005 cost estimate that was included in the RWSP 2005 Annual Report has been revised so that future expenditures, planned for 2006 to 2030, are adjusted for inflation to a base year of 2005 (see Section 13.2.2). This lowered the estimate by about $18 million.

Notes: All costs in 2006 column are as of December 31, 2006; projects shown are not exhaustive, but are listed to Illustrate changes. Totals may not add due to rounding. Expenditures that have occurred through 2006 are included at their original value.

[a] The 2006 Brightwater cost estimates are shown in constant 2006 dollars to provide a consistent comparison of total RWSP costs. Section 13.2.3 discusses presenting Brightwater costs in nominal dollars, consistent with the Brightwater Cost Update, January 2007.

[b] RWSP conveyance project needs and costs were updated in June 2007 as part of the CSI update. The difference in total 2006 costs shown in this sheet from the update is that estimates in this sheet were revised so that future expenditures, planned for 2007 through 2030, are adjusted for inflation to a base year of 2006; total costs also include expended and future planning costs; the planning costs are not included in the CSI update.

[c] The I/I costs include $45 million for the six-year study that was completed in 2005. The additional $4 million covers flow monitoring costs associated with the I/I initial projects, ongoing modeling, analysis, and reporting, public education, and other program related costs; the I/I initial project design and construction costs are funded by the CSI program in accordance with the recommended program approved by the King County Council in 2006, therefore, these costs are not shown in this line item.

[d] The 2005 and 2006 cost estimates for the CSO control program are the 1998 planning-level estimates adjusted for inflation. CSO control program cost estimates will be updated after completion of the hydraulic model update and will be provided with the 2010 CSO program review.

13.2.3 Explanation of RWSP Cost Estimate Summary Table

Table 13-3 presents a summary of the 2005 and 2006 RWSP cost estimates. The table includes four columns:

- **2005 Cost Estimates (2005$ x 1M) column.** This column shows the 2005 RWSP cost estimates in 2005$ dollars. The 2005 cost estimates include costs expended through 2005 at their original cost and costs anticipated 2006 through 2030 adjusted for inflation to a base year of 2005.
- **2005 Cost Estimates (2006$ x 1M) column.** This column shows the 2005 RWSP cost estimates adjusted to 2006 dollars to show how the updated 2006 cost estimates compare to the 2005 cost estimates adjusted for inflation. Adjustments for inflation are based on the assumption of a standard increase of 3 percent per year. Expenditures that occurred through 2005 are included at their original cost and not adjusted for inflation.
- **2006 Updated Cost Estimates (2006$ x 1M) column.** This column shows the updated 2006 cost estimates in 2006 dollars that were developed based on project details as of December 31, 2006. Future expenditures—costs anticipated 2007 to 2030—have been adjusted for inflation to a base year of 2006. Expenditures that occurred through 2006 are included at their original cost.
- **Cost Change (2006$ x 1M) column.** This column shows the changes in cost estimates for each line item and total category cost from the 2005 cost estimates to the 2006 cost estimates in 2006 dollars.

Table 13-3 presents the total cost estimates for each RWSP category first, followed by the cost estimates for specific projects or programs within the category. The RWSP categories are as follows:

- Brightwater Treatment and Conveyance
- Treatment and Odor Control Improvements (Non-Brightwater)
- Conveyance (Non-Brightwater)
- Infiltration/Inflow
- Combined Sewer Overflow
- Reclaimed Water
- Water Quality Protection
- Habitat Conservation Plan
- RWSP Planning and Reports

The following sections provide more detail on each category.

Brightwater Treatment System

The Brightwater cost estimates in Table 13-3 are shown in 2006 dollars to provide a consistent comparison with total RWSP costs. In other words, future Brightwater costs planned to occur in 2007 through 2011 have been adjusted to 2006 dollars.

In the *Brightwater Cost Update, Current Conditions, and Trends*, January 2007, Brightwater costs are now being reported in nominal or inflated dollars. The Brightwater 2007 trend report cost estimate of $1.767 billion is $14 million (0.8 percent) than the 2005 Brightwater cost estimate (Table 13-4). This reflects that some project elements are now expected to be completed later in the 2007-2011 construction period. However, as shown in Table 13-3, when adjusted for inflation, the 2007 trend estimate is $1.664 billion (2006$) which is $5.3 million (0.3 percent) less than the 2005 estimate of $1.670 billion (2006$). This indicates that the changes to the project plan reflected in the trend estimate resulted in cost increases that are slightly less than what is expected from inflationary effects. Therefore, adjusting for inflation yields a slightly lower overall cost estimate.

The remainder of this section explains the reasons for presenting Brightwater costs in nominal dollars, and shows changes in Brightwater costs in nominal dollars.

Explanation of Presenting Brightwater Cost Estimates in Nominal Dollars

Generally speaking, the estimated cost of a capital project is the product of the price times the quantity of the elements that make up the project. However, for a multi-year project like Brightwater, presenting this information is complicated by the fact that these costs are incurred over time during which conditions change, most notably prices. In the initial planning phase of the Brightwater project, cost estimates were presented in present value terms, which provided a consistent means of comparing the various alternatives. Once the current project configuration was adopted, cost estimates were presented in constant dollars; that is, dollars adjusted for inflation (deflated) to reflect base-year prices. For example, a cost estimate in 2004 constant dollars reflected the cost of the project in the prices available in 2004. Another reason constant dollars were used is because it avoided having to forecast future prices in addition to estimating quantities.

In the December 2005 Trend Report, the future costs in constant 2005 dollars were spread over the remaining project lifetime by year and inflation was added at 3 percent per year to develop total lifetime costs in nominal (inflated) dollars. This 3 percent inflation rate was applied to all of the construction costs and future allied costs, primarily staff labor and consultant costs. Consequently, the January 2007 cost trend reflects a blend of inflated costs, including the following:

- Actual costs through December 2006, which include inflation occurring since the start of the project
- Conveyance construction contract costs for awarded contracts, which incorporate the contractor estimates of inflation
- Increases in general and extraordinary inflation on construction costs for both the treatment plant and conveyance system
- Inflation on the remaining allied costs of 3 percent per year

The Brightwater project is now transitioning to construction, and King County is awarding contracts based on contractor bids that identify the cost of the various work packages, including inflation. These nominal costs are now the most reliable source for creating the Brightwater cost estimate. Table 13-4 compares the Brightwater December 2005 cost estimate to the current cost estimate; the costs are shown in nominal dollars.

Table 13-4. December 2005 Brightwater Estimate Compared to the Current Cost Estimate (millions)

Brightwater Component	December 2005 Inflated	January 2007 Inflated	Cost Change Dec. 05-Jan. 07
Treatment Plant	$ 584.0	$ 629.4	$ 45.4
Conveyance	926.5	891.2	(35.3)
Land/ROW	97.6	97.1	(0.5)
Mitigation	145.0	149.7	4.7
Total[a]	**$1,753.0**	**$1,767.3**	**$14.3**

[a]Totals may not add due to rounding.

Brightwater Treatment Plant

The current cost estimate for the Brightwater Treatment Plant is $629 million, an increase of $45 million from the 2005 cost estimate. The increase is the result of higher-than-anticipated inflation, design refinements, and allied costs that were partially offset through the use of project contingency.

Brightwater Conveyance

The current cost estimate for Brightwater conveyance is $891 million, a decrease of $35 million from the 2005 cost estimate. This decrease is a result of the following:

- An increase of $45 million in construction costs for the conveyance system since December 2005. This increase is primarily due to general and extraordinary inflation as well as additional insurance costs over those estimated previously.
- A decrease of $80 million in non-construction costs for the conveyance system since December 2005. This decrease is primarily a result of the use of project contingency, which is appropriate use of contingency now that the construction costs for the major segments of the project are known. In addition, an evaluation of the engineering costs allowed a reduction in allied costs related to design and geotechnical work.

Land and Right-of-Way

The current cost estimate for land and right-of-way expenses is $97 million, a decrease of about $0.5 million from the 2005 cost estimate. The process of acquiring land and rights-of-way is almost complete. With the exception of a remaining payment to acquire Portal 19 (Point Wells Portal) and the sale of surplus equipment from the Stockpot property, which is credited against the treatment plant cost, there should be no further changes to this cost element.

Mitigation

The current cost estimate for mitigation is approximately $150 million, an increase of about $5 million from the 2005 cost estimate. The primary reason for this increase is a final cost for the land associated with mitigation. The original estimate of mitigation land costs was based on a prorated allocation of acreage for the total cost of land. The final costs reflect the actual expenditures after reviewing the acquisition costs of each specific parcel of land. This increase was partially offset by a reduction in mitigation-specific contingency for the treatment plant of $2.95 million because the contingency use was not required as a part of the Binding Site Plan process. Mitigation costs for the project are now fixed (other than inflation on King County constructed mitigation items) and all final mitigation payments should be complete by early 2008.

Chapter 2 provides more information on the Brightwater Treatment Plant; Chapter 3 provides more information on Brightwater conveyance.

Treatment and Odor Control Improvements (Non-Brightwater)

The costs in Table 13-3 for non-Brightwater treatment and odor control improvements include treatment plant improvements and specific odor control improvements that result from implementing RWSP policies. The 2006 cost estimates for these projects is $163 million, an increase of $13 million from the 2005 cost estimates.

Odor Control at South Plant

The cost estimate for odor control improvements at South plant increased by approximately $3 million from the 2005 estimate. This increase is primarily due to increased construction costs for structural modifications to improve worker safety by improving accessibility to the odor control equipment.

West Point Odor Control

There have not been any significant changes to the cost estimates from the 2005 estimate for the West Point Odor Control project. The project was substantially complete in early 2007.

West Point Digestion Improvements

The 2006 cost estimate for West Point Digestion Improvements increased by about $2 million from the 2005 estimate. The need for additional structural work associated with installing the new digester mixing systems along with rising inflation and construction costs contribute to this increase.

King Street Odor Control Project

The 2006 cost estimate for the King Street Odor Control Project increased by about $2 million from the 2005 estimate due to design changes and rising inflation and construction costs. The changes address the concerns of involved stakeholders, including the Washington State Department of Transportation, Amtrak, Pioneer Square Preservation Board, and First and Goal.

South Plant Expansion

Because the South plant expansion is planned for 2029, the cost estimates for this project have not been updated since the 1998 RWSP cost estimate. The current estimate of $106 million reflects the 1998 preliminary planning-level estimate adjusted for inflation to 2006 dollars.

Vashon Treatment Plant Upgrade

There were no significant cost increases to the Vashon Treatment Plant Upgrade from the 2005 cost estimate. However, costs could increase in the future due to a construction claim that was received in June 2007.

Carnation Treatment Plant

The 2006 cost estimate for the Carnation Treatment Plant project increased by $6 million from the 2005 estimate. Raising the elevation of the plant site to prevent flooding based on a new floodplain study that was released after the planning phase of the project, changes to odor control to meet community concerns, and significant increases in the cost of construction materials contribute to the increase.

More information on these treatment and odor control projects is provided in Chapter 2.

Conveyance (Non-Brightwater)

Table 13-3 shows the 2006 cost estimate for non-Brightwater conveyance increased by $87 million from the 2005 estimate. As noted in the *RWSP 2005 Annual Report*, conveyance system improvement (CSI) project cost estimates were being updated as part of the CSI Program Update, which was completed in summer 2007. The update identified new projects as well as modifications to projects that were previously identified in the technical memorandum entitled *Summary of Non- Brightwater Conveyance Cost Increases from the 1998 Regional Wastewater Services Plan to the 2004 Regional Wastewater Services Plan Update* (June 2004).

The CSI program update identified conveyance improvement needs through 2050, which is when the regional wastewater service area is projected to be fully built out and all sewerable portions of the service area will be connected into the wastewater system. Because the RWSP's planning horizon is through 2030, the conveyance cost estimates discussed in this section and shown in Table 13-3 reflect conveyance capital projects and associated planning from 1999 through 2030.[8]

The CSI program update identified 13 new projects, with an overall planning-level cost estimate of approximately $127 million. There was an increase of approximately $21 million in cost estimates of projects identified in the 2004 technical memorandum that are now in design; a decrease of approximately $12 million in cost estimates of projects that were identified in the memorandum and are now completed; and an increase of about $14 million in cost estimates for projects in construction. Some projects have been eliminated from the CSI program cost estimates because the update process confirmed they are no longer needed or are not capacity related; the cost estimates for eliminated projects total approximately $67 million.

[8] The 2007 CSI Program Update is available on the Web at http://dnr.metrokc.gov/wtd/csi/library.htm

The 2006 cost estimate shown in Table 13-3 for non-Brightwater conveyance is $754 million. This estimate includes the capital project estimates from the 2007 CSI program update with future expenditures adjusted to 2006$, planning and other related costs that have been expended since RWSP adoption to develop the CSI program, and future planning costs. Planning costs include costs associated with staff labor, consultant labor, modeling, flow monitoring, alternatives analyses, and cost analysis. Over one-half of the total conveyance costs represent planning level estimates.

More information on the conveyance system improvement program is provided in Chapter 3.

Infiltration/Inflow

The costs of the infiltration/inflow (I/I) control program increased by $4 million from the 2005 estimate. The 2005 estimate of $45 million represents costs associated with the comprehensive six-year I/I control study, which was completed in 2005. As a result of this study, and recommendations made by the Metropolitan Water Pollution Abatement Advisory Committee, the King County Executive submitted a recommended I/I control program to the King County Council, which was approved via Motion 12292.

The increase in the 2006 estimate represents new costs that were not previously a part of the RWSP I/I control program. These costs are associated with carrying out the recommended I/I program that was approved in 2006 and include costs related to flow monitoring for the I/I initial projects; ongoing modeling, cost-benefit analysis, planning, and reporting; public education; and regional I/I clearinghouse and other program related costs.

It is important to note that the purpose of the recommended I/I control program is to invest in I/I reduction in lieu of investing in larger conveyance system improvements when it is cost-effective to do so. In accordance with the recommended program, the I/I initial project design and construction costs ($25 million) are funded by the CSI program and not included as part of I/I program costs.

More information on the I/I control program is provided in Chapter 4.

Combined Sewer Overflow Control

The total combined sewer overflow (CSO) cost estimate includes costs associated with the CSO control program, CSO planning and updates, Sediment Management Program, and the Lower Duwamish Waterway Superfund project. The 2006 total CSO cost estimate is $444 million, an increase of $4 million from the 2005 cost estimate.

The $4 million increase in the Sediment Management Program is due to the delay of several cooperative cleanup projects and additional work associated with the Puget Sound Partnership efforts.

The CSO control program cost estimates represent the 1998 RWSP cost estimates of the 21 planned CSO control projects adjusted for inflation to 2006 dollars. As noted in Chapter 5, additional analysis of CSO planned project costs have not been done because the update of the

hydraulic model will likely change sizes, definitions, and thus costs of several planned control projects. Cost estimates may also increase as the result of design changes made to accommodate evolving regulations, potential effects of climate change, odor control to meet the RWSP odor control policies adopted in 2003, and increases in materials, labor, and contractor costs in this competitive construction environment. New cost estimates will be developed when the hydraulic model is updated and should be available for discussion in the next CSO control program review in 2010.

More information on the CSO control program is provided in Chapter 5.

Reclaimed Water

The total 2006 cost estimate for the Reclaimed Water Program is $36 million; this is the same amount as the 2005 cost estimate adjusted to 2006$. The projects and programs that make up the total reclaimed water cost estimate are as follows:

- **Technology Demonstration Project.** This project was complete as of December 31, 2004. The 2006 cost estimate represents the total expenditures for this project and is the same as the 2005 cost estimate.
- **Future Water Reuse.** This program includes activities to implement the RWSP water reuse plan that was submitted to the council in December 2000 and to support water conservation opportunities within WTD programs. The costs associated with the Reclaimed Water Feasibility Study are included in this program.
- **RWSP Water/Wastewater Conservation Program.** This project has been completed; there is no change from the 2005 cost estimate.
- **Sammamish Valley Reclaimed Water Facility.** This project was cancelled in favor of the reclaimed water capabilities at the Brightwater Treatment Plant. The costs expended prior to cancellation of this project will continue to be included as part of the RWSP cost estimate.
- **Reclaimed Water Backbone.** This project will add reclaimed water pipes in the Brightwater conveyance tunnels and convert an existing wastewater pipe to carry reclaimed water from Bothell to the York Pump Station in the Sammamish Valley. Design was completed on the backbone in 2006. There is no change from the 2005 cost estimate.

More information on the reclaimed water program is provided in Chapter 7.

Water Quality Protection

The Water Quality and Protection Program—a water resource modeling and monitoring program—provides scientific information on water quality and hydrologic conditions in both the Lake Washington and Green River watersheds. This project was complete as of December 2006. The $1 million change shown in the 2006 cost estimate from the 2005 estimate is due to rounding.

Habitat Conservation Plan/Programmatic Biological Assessment

As reported in the *RWSP 2005 Annual Report*, the majority of the funds allocated to the Habitat Conservation Plan have been expended. The remaining funds are being directed to pursuing a Programmatic Biological Assessment with NOAA Fisheries and U.S. Fish and Wildlife Services, which is expected to be complete in 2008. Total costs are now expected to be approximately $8 million instead of approximately $10 million.

RWSP Planning and Reporting

The RWSP reporting policies call for RWSP annual reports and comprehensive reviews. The costs associated with these reporting requirements have not changed from the 2005 cost estimate.

13.3 Amendments to Financial Policies

The King County Council approved amendments to the RWSP treatment policies via adoption of Ordinance 15602 in September 2006. The amendments are as follows:

- Divided FP-2 into two separate policies (FP-2 and FP-3); no changes were made to the text
- Added a policy (FP-4) that requires reporting to the Regional Water Quality Committee and including in the RWSP annual reports information on new technologies or practices that differ significantly from existing technologies or practices, including the projected costs for such changes
- Added a policy (FP-5) that provides direction for new capital and operational initiatives that are not within the current scope of the RWSP nor included in the RWSP, or are required by new state or federal regulations, to be reviewed by the RWQC and approved by the King County Council
- Amended FP-8 to require information on alternative funding methods for water quality improvement activities be provided to the RWQC and King County Council in April 2007 (see Section 13.1.4 in this chapter)